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REMOTE SENSING

Landsat Data

Memorandum of Understanding
Between the
UNITED STATES OF AMERICA
and the EUROPEAN SPACE AGENCY

Signed at Paris October 7, 1978

and

Extending Agreement
Effected by Exchange of Letters
Signed at Washington and Paris June 17, 1982

S 9.10:

NOTE BY THE DEPARTMENT OF STATE

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EUROPEAN SPACE AGENCY

Remote Sensing: Landsat Data

Memorandum of understanding signed at Paris October 7, 1978;
Entered into force October 7, 1978;
Effective May 9, 1978.
And extending agreement
Effected by exchange of letters
Signed at Washington and Paris June 17, 1982;
Entered into force June 17, 1982.

MEMORANDUM OF UNDERSTANDING BETWEEN THE EUROPEAN SPACE AGENCY AND THE UNITED STATES NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

The United States National Aeronautics and Space Administration (NASA) and the European Space Research Organisation, established by the Convention opened for signature in Paris on 14 June 1962 [1] and conducting its activities since 31 May 1975 under the name of the European Space Agency (ESA), recognizing:

- that NASA conducts an experimental Landsat earth resources satellite program and that NASA, under certain conditions, provides for direct reception of data from these satellites by stations operated outside the United States, and

- that ESA has established the EARTHNET System for the reception, pre-processing, archiving and dissemination of data from earth resources observation satellites, and affirms that it has concluded appropriate agreements with Telespazio of Italy and the Swedish Board for Space Activities, under authority given to it by its member States including Italy and Sweden, for the operation of Landsat ground stations in Fucino (Italy) and Kiruna (Sweden),

have decided to enter into this Memorandum of Understanding which, subject to the following terms and conditions, provides for (a) direct access to NASA's currently operating and future experimental Landsat satellites by the EARTHNET System and (b) making available to NASA and others Landsat data acquired by the ground stations of this System.

1. For its part, ESA will use its best efforts to:

   (a) set up and operate, under its authority, EARTHNET System, including the above-mentioned ground stations at Fucino (Italy) and Kiruna (Sweden), for the reception, pre-processing, archiving and dissemination of in particular Landsat data, at its own cost including the cost of the necessary communication links with the NASA Landsat Operations Control Center/NASA Data Processing Facility (OCC/NDPF) at the Goddard Space Flight Center;

[1] 528 UNTS 33.

(b) produce computer compatible tapes and image products;

(c) ensure, in conformance with the US Landsat data dissemination practices, unrestricted public availability of all Landsat data of areas within the EARTHNET coverage zone at a fair and reasonable charge, and in a non-discriminatory manner;

(d) ensure the provision of pre-processed Landsat data (imagery and digital products) to NASA-selected Principal Investigators whose test sites are in the EARTHNET coverage zone, for the period of coverage envisaged and under the same conditions as NASA applies to them;

(e) provide to NASA, on terms to be agreed mutually, reasonable support in a spacecraft emergency condition, such as the provision of duplicate station tapes or high density digital tapes should the Landsat on-board tape recorders fail;

(f) provide to NASA and the US EROS Data Center on a monthly, cost-free basis catalogue listings of Landsat data acquired by the EARTHNET System. Catalogue listings of all Landsat stations will also be made publicly available;

(g) make available to NASA on request, for US Agencies' experimental purposes, on a cost-free basis and in reasonable quantities, copies of Landsat data acquired and pre-processed by the EARTHNET System.

2. For its part, NASA will use its best efforts to:

(a) program Landsats-2 and -3 and any subsequent experimental NASA Landsat type satellites to acquire and transmit data of areas accessible for direct read-out at the EARTHNET ground stations with a view to ensuring regular coverage of the EARTHNET coverage zone commensurate with the Landsat repeat cycle. Details of this programming will be subject to mutual agreement by the designated technical representatives of the parties;

(b) provide the EARTHNET ground stations with orbital elements for calculating the antenna pointing angles necessary to acquire the Landsat transmitted signals, and for processing the data acquired;

(c) process, on a time available basis, as agreed by the designated technical representatives, a limited number of data tapes for initial evaluation and calibration of station performance;

(d) make available to ESA for comparison purposes, a limited number of NASA data tapes covering selected portions (as defined by ESA) of the EARTHNET coverage zone.

3. ESA and NASA will each designate technical representatives to be responsible for coordinating the agreed functions and responsibilities of each party with the other. The technical representatives, and their deputies, and advisors as mutually agreed, will participate in meetings of the Landsat Ground Station Operations Working Group. This Working Group, established by NASA, meets every six months and serves as a forum for exchange of technical information among station operators. Supplemental meetings between ESA and NASA will be held as mutually agreed.

4. The following additional understandings are confirmed:

(a) ESA will, in cooperation with the responsible national and international authorities, take appropriate measures so that any radio frequency problem occurring in relation to Landsat data reception within the EARTHNET coverage zone is resolved to the satisfaction of the parties to this Memorandum of Understanding. In this context, it is noted that provisions of the International Telecommunications Union's Radio Regulations require that radio frequencies for future operational Landsat-type satellites will differ from those currently used for experimental satellites.

(b) It is understood that the NASA Landsat Program is experimental in character and, therefore, subject to change in accordance with modifications in technical requirements and opportunities, and that at the date of this Memorandum of Understanding, NASA cannot make a firm commitment regarding the launching of future Landsat-type satellites. NASA, however, undertakes to keep ESA informed in good time of any modifications to the satellite design or to its plans for the Landsat series of satellites which may affect the implementation of this Memorandum of Understanding.

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(c) NASA and ESA will exchange, upon request, such technical information including software programs as may be mutually agreed to be necessary for the implementation of this Memorandum of Understanding and is consistent with the applicable export regulations.

(d) NASA and ESA may each release public information regarding their own activities under this Memorandum of Understanding and, insofar as the participation of the other party is concerned, after suitable consultation.

(e) NASA and ESA will use their best efforts to arrange for free customs clearance for equipment required for the execution of this Memorandum of Understanding.

(f) The responsibility for spacecraft control, health and status will remain with NASA throughout the execution of this Memorandum of Understanding.

(g) When the expected coverage of a prospective Landsat ground station overlaps with that of the EARTHNET Landsat stations, NASA will inform ESA and will advise the prospective station operator of this ESA/NASA Memorandum of Understanding which provides for the unrestricted public availability of data of areas within range of the EARTHNET stations at a fair and reasonable charge. Should the prospective station operator choose to pursue plans for a station with substantially overlapping coverage, NASA will encourage the prospective station operator and ESA to consult with a view toward reaching a mutually satisfactory understanding on responding to requests for data of the overlapping coverage area.

(h) The US EROS Data Center will include with all responses to requests for Landsat data acquired in the EARTHNET coverage zone, a statement noting that ESA should have available more recent and/or more complete Landsat coverage. In the event that the EROS Data Center receives requests for specific Landsat scenes, products or for specific information on their holdings, EROS will, in accordance with US Freedom of Information laws, provide the data and/or information requested.

5. It is understood that the ability of ESA and NASA to carry out their responsibilities under this Memorandum of Understanding is subject to the availability of appropriated funds.

6. In consideration of the costs NASA is bearing for the Landsat space segment, ESA will pay to NASA the sum of $200,000 per annum for each EARTHNET Landsat ground station payable quarterly at the end of each quarter.

This rate is expected to remain in effect until January 1, 1979 after which NASA may, after consultation with operating agencies, revise the rate and arrangements for cost sharing. Such revised cost sharing arrangements will be applied to all non-US Landsat stations on an equitable basis.

7. The terms of this Memorandum of Understanding may be modified at any time with the express written consent of both parties.

8. (a) Any disputes as to the interpretation or implementation of the terms of this Memorandum of Understanding shall be referred to the NASA Administrator and the Director General of ESA for settlement.

(b) Should the NASA Administrator and the ESA Director General be unable to resolve such disputes, they will be submitted to such other form of resolution or arbitration as they may agree.

9. ESA will take the lead in harmonizing, to the satisfaction of all concerned, any previous Landsat ground station agreements concluded between NASA and the entities who take part in EARTHNET with this Memorandum of Understanding.

10. Subject to its signature by the representatives of ESA and NASA, this Memorandum of Understanding shall enter into force on May 9, 1978 and shall continue in force for four years, subject to extension as may be agreed between ESA and NASA.

[1]

For the European Space Agency

7 October 1978
Date

[2]

For the National Aeronautics and Space Administration

7 October 1978
Date

[1] R. Gibson.
[2] Robert A. Frosch

[EXTENDING AGREEMENT]

The Administrator of the National Aeronautics and Space Administration to the Director General of the European Space Agency

NASA

National Aeronautics and
Space Administration

Washington, D.C.
20546

Office of the Administrator

JUN 17 1982

Mr. Erik Quistgaard
Director-General
European Space Agency
8-10, rue Mario Nikis
75738 Paris Cedex 15
FRANCE

Dear Erik:

I am writing to propose an extension of NASA's Memorandum of Understanding with the European Space Agency for reception of experimental Landsat data at the Fucino, Italy and Kiruna, Sweden Earthnet stations. The Memorandum of Understanding entered into force for a period of four years commencing May 9, 1978. It is subject to extension by the agreement of ESA and NASA.

As you already know, the U.S. has begun planning for an operational land remote sensing satellite system to follow the current NASA experimental Landsat program. Current plans call for the phased transfer from NASA to the National Oceanic and Atmospheric Administration (NOAA) of the Landsat-D and D' system with NOAA interim management until establishment of a private sector system authorized by the U.S. Government. Landsat ground station operators will be kept informed by the U.S. Government of plans for transfer of the Landsat-D system from NASA, for direct reception of sensor data during the period of NOAA interim management, for data pricing structure and for establishment of the private sector system. It is understood that NOAA plans to conclude agreements for direct reception by foreign ground stations of MSS data prior to the transfer of the Landsat-D MSS System from NASA. Arrangements will also be negotiated to provide ESA Earthnet ground stations access to NASA's experimental TM sensor.

Taking into account such planning, NASA would therefore propose an extension of the present ESA/NASA MOU for Landsat reception to remain in effect until the turnover of Landsat operations from NASA or until September 30, 1983, whichever

comes first. If this proposal is acceptable to ESA, we propose that this letter, together with your affirmative response, constitutes an agreement extending the present ESA/NASA MOU for Landsat data reception.

Sincerely,

James M. Beggs
Administrator

The Director General of the European Space Agency to the Administrator of the National Aeronautics and Space Administration

esa

european space agency
agence spatiale européenne

JUR/16.7/WMI/3476

Mr. J.M. Beggs
NASA Administrator
NASA
Washington D.C. 20764
U.S.A.

17 June 1982

Dear Jim

I acknowledge receipt of your letter concerning the extension of the Memorandum of Understanding between NASA and ESA for reception of experimental LANDSAT data, which reads as follows:

[For the text of the U.S. letter, see pp. 7-8.]

I have the honour to confirm that ESA agrees to the foregoing and also to your proposal that your letter, together with my reply, constitutes an agreement extending the present ESA/NASA MOU for LANDSAT data reception.

Yours sincerely,

E. Quistgaard
Director General

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